

AMENDMENTS TO THE DRAWINGS:

In response to the Examiner, Applicants respectfully submit replacement sheets for Figures 1, 4, 8, 11, 12, and 14. Each sheet is appropriately labeled with the designation of "Replacement Sheet" in the top margin.

Applicants further note, in response to the Examiner's objection to the drawings under 37 CFR 1.84(p)(5) in section 3.1(a) of page 2 of the Office Action, that reference character 223b is mentioned in the detailed description at line 1 of page 27.

REMARKS

In the Office Action, the Examiner rejected claim 1 under 35 U.S.C. § 102 (e) as allegedly being anticipated by Lei et al. (U.S. Patent Application Publication No. 2003/0113187 A1); rejected claims 1-3 and 7-8 under 35 U.S.C. § 102(b) as allegedly being anticipated by Hertel et al. (U.S. Patent No. 4,836,733); rejected claims 9-11 under 35 U.S.C. § 102(b) as allegedly being anticipated by Tabrizi et al. (U.S. Patent No. 6,315,512); and rejected claims 4-6 under 35 U.S.C. § 103(a) as allegedly being obvious over Hertel et al. in view of Kato (U.S. Patent No. 5,054,991).

By this amendment, Applicants amend the drawings, the specification, and claims 1-7. Applicants also cancel claims 8-11 without prejudice or disclaimer and submit newly added claims 12-17. After entry of this Amendment, claims 1-7 and newly added claims 12-17 will remain pending. Of these claims, claims 1, 7, and 12 are independent. The originally-filed specification, claims, abstract and drawings fully support the amendments to the specification and claims 1-7 as well as the addition of claims 12-17. No new matter has been introduced.

Applicants respectfully traverse the rejections for at least the following reasons:

I. 35 U.S.C. § 102(e) rejection of claim 1

The Examiner rejected claim 1 under 35 U.S.C. § 102(e) as allegedly being anticipated by Lei et al. (U.S. Patent Application Pub. No. 2003/0113187 A1).

Applicants respectfully traverse this rejection.

Amended independent claim 1 recites a substrate processing apparatus having, among other things: a transfer chamber in which a linear transfer path is provided and which is maintained under vacuum condition; a first process chamber which is

connected to the transfer chamber via a gate valve and in which a first process disposes a substrate; a second process chamber which is connected to the transfer chamber and disposed in the vicinity of the first process chamber; a transfer mechanism which is connected movably to the transfer path; a detecting mechanism which is stationed at a carry-in route for the substrate to be conveyed to a table in said second process chamber via a gate valve thereof; and a correcting mechanism.

In the Office Action, the Examiner contends that Lei et al. discloses all of the components of claim 1 including a first process chamber 106, a second process chamber 108, and a transfer mechanism 120. However, even assuming that Lei et al. teaches the above components as alleged by the Examiner, which Applicants do not concede, Lei et al. does not disclose or suggest the detecting mechanism or the correcting mechanism as required by amended claim 1.

According to the Examiner, the detecting mechanism and the correcting mechanism are anticipated by the detection system 204 and aligner 180 of Lei et al., respectively. The aligner 180 includes the detecting system 204 having the emitter 206 and the receiver 208 which communicates with controller 274 and is coupled to turntable 202. When the angular position (displacement) of the wafer is detected by the emitter 206 and the receiver 208, the displacement is compensated by using controller 274 to selectively rotate turntable 202. However, the aligner 180 is provided in the factory interface 102 which is positioned between the transfer chamber 104 and the cassette holder 130. Therefore, the displacement compensation of the wafer is carried out as the wafer is transferred to the transfer mechanism from the cassette holder 130. See paragraphs [0022], [0025], and [0027].

By contrast, the detecting mechanism as recited in amended claim 1 “is stationed at a carry-in route for the substrate to be conveyed to a table in said second process chamber via a gate valve thereof.” That is, in the present invention, the detecting mechanism is provided as sensors 21 and 22, disposed in the second processing chamber 14 (i.e., the correction of the wafer position is carried out in the processing chamber 14 by driving the motor controller 39 and thus, the transfer mechanism 23). See Fig. 3 and paragraphs [0053]-[0055].

In the device of Lei et al., when the displacement of the wafer is compensated at the transfer mechanism chamber (factory interface 102), the displacement of the wafer at the processing chamber may be incorrect because the wafer is not transferred to the processing chamber until *after* compensation. Thus, because the detecting mechanism of Lei et al. does not provide displacement compensation during post-transfer real processing as required by amended claim 1, the substrate is subjected to displacement inaccuracies between the transfer and processing steps.

Therefore, Lei et al. does not teach or suggest a transfer chamber in which a linear transfer path is provided and which is maintained under vacuum condition; a first process chamber “which is connected to the transfer chamber via a gate valve”; a second process chamber “which is connected to the transfer chamber and disposed in the vicinity of the first process chamber”; a transfer chamber “which is connected movably to the transfer path”; or a detecting mechanism “which is stationed at a carry-in route for the substrate to be conveyed to a table in said second process chamber via a gate valve thereof”.

As a further matter, because the factory interface 102 of Lei et al. is maintained under atmospheric conditions, the vacuum and purging operations at load lock chambers 110 and 112 must be carried out repeatedly. As a result, the operation of Lei et al. becomes complicated and thus, is not appropriate for subsequent in-line processing. Conversely, because the transfer chamber and process chambers of the present invention are maintained under vacuum conditions, the displacement compensation may be carried out under a vacuum, and the cyclical vacuum and purging operations of Lei et al. are obviated.

Accordingly, Lei et al. fails to teach each and every element of amended independent claim 1 and Applicants respectfully request that the rejection be reconsidered and withdrawn.

II. 35 U.S.C. § 102(b) rejection of claims 1-3 and 7-8

The Examiner rejected claims 1-3 and 7-8 under 35 U.S.C. § 102(b) as allegedly being anticipated by Hertel et al. (U.S. Patent No. 4,836,733). Applicants respectfully traverse these rejections.

Amended independent claim 1 recites a substrate processing apparatus having, among other things: a transfer chamber in which a linear transfer path is provided and which is maintained under vacuum condition; a first process chamber which is connected to the transfer chamber via a gate valve and in which a first process disposes a substrate; a second process chamber which is connected to the transfer chamber and disposed in the vicinity of the first process chamber; a transfer mechanism which is connected movably to the transfer path; a detecting mechanism which is

stationed at a carry-in route for the substrate to be conveyed to a table in said second process chamber via a gate valve thereof; and a correcting mechanism.

In the Office Action, the Examiner seems to have pointed to the components illustrated in Figures 4 and 5 of Hertel et al. as sufficient to anticipate the detecting mechanism and correcting mechanism of claim 1. Office Action, page 5. However, those components discussed between Column 8, line 24 and Column 10, line 45 of Hertel et al., including orientator chuck 114, chuck shaft 116, air cylinder 118, support bracket 130, light source 132, solar cell 134 and transfer arm 22, are all disposed in the transfer vacuum chamber 24. Thus, displacement compensation of the wafer is carried out, not in the processing chamber as required by amended claim 1, but rather, in vacuum chamber 24.

By contrast, the detecting mechanism as recited in amended claim 1 "is stationed at a carry-in route for the substrate to be conveyed to a table in said second process chamber via a gate valve thereof." That is, in the present invention, the detecting mechanism is provided, for example, as sensors 21 and 22, disposed in the second processing chamber 14 (i.e., the correction of the wafer position is carried out in the processing chamber 14 by driving the motor controller 39 and thus, the transfer mechanism 23). See Fig. 3 and paragraphs [0053]-[0055].

In the device of Hertel et al., when the displacement of the wafer is compensated at the transfer vacuum chamber, the displacement of the wafer at the processing chamber may be incorrect because the wafer has been transferred from the transfer vacuum chamber *after* compensation. Thus, the detecting mechanism of Hertel et al. does not provide displacement compensation during post-transfer real processing as

required by amended claim 1, thereby subjecting the substrate to displacement inaccuracies between the transfer and processing steps.

Moreover, the Examiner contends that the elevator chamber 20 and transfer vacuum chamber 24 of Hertel et al. anticipate the first process chamber and second process chamber, respectively, of amended claim 1. However, Hertel et al. discloses a wafer transfer apparatus having cassette holders 10, cassette locks 14, 16, 18, an elevator chamber 20, a transfer arm 22, a transfer vacuum chamber 24 and an orientation station 26. Hertel et al. does not teach or suggest the first process chamber and the second process chamber as recited in amended independent claim 1. In particular, the elevator chamber 20 and transfer vacuum chamber 24 of Hertel et al. are not process chambers (i.e., chambers in which a processing step is performed on a substrate therein). In fact, the chambers 20 and 24 of Hertel et al. are chambers in which conveying of cassettes, but not processing of cassettes takes place.

Therefore, Hertel et al. does not teach or suggest a transfer chamber in which a linear transfer path is provided and which is maintained under vacuum condition; a first process chamber “which is connected to the transfer chamber via a gate valve”; a second process chamber “which is connected to the transfer chamber and disposed in the vicinity of the first process chamber”; a transfer chamber “which is connected movably to the transfer path”; or a detecting mechanism “which is stationed at a carry-in route for the substrate to be conveyed to a table in said second process chamber via a gate valve thereof”.

Accordingly, Hertel et al. fails to teach each and every element of amended independent claim 1 and Applicants respectfully request that the rejection be reconsidered and withdrawn.

Claims 2-3 and 7 depend from claim 1 and are therefore patentable for at least all of the reasons for which the base claim is patentable.

Applicant has cancelled claim 8.

III. 35 U.S.C. § 102(b) rejection of claims 9-11

The Examiner rejected claims 9-11 under 35 U.S.C. § 102(b) as allegedly being anticipated by Tabrizi et al. (U.S. Patent No. 6,315,512).

Applicant has cancelled claims 9-11.

IV. 35 U.S.C. § 103(a) rejection of claims 4-6

The Examiner rejected claims 4-6 under 35 U.S.C. § 103(a) as allegedly being obvious over Hertel et al. (U.S. Patent No. 4,836,733) in view of Kato (U.S. Patent No. 5,054,991).

Applicants respectfully traverse the rejection of claims 4-6 over Hertel et al. in view of Kato. Even if Kato were to teach what the Examiner alleges (and Applicants do not necessarily agree that it does), this reference fails to overcome the above-described deficiencies of Hertel et al.. Accordingly, claims 4-6 are allowable over this combination of references at least due to its dependence from claim 1.

The Office Action contains characterizations of the claims and the related art with which Applicant does not necessarily agree. Unless expressly noted otherwise, Applicants decline to subscribe to any statement or characterization in the Office Action.

In discussing the specification, claims, and/or drawings in this Amendment, it is to be understood that Applicant is in no way intending to limit the scope of the claims to any exemplary embodiments described in the specification or abstract and/or shown in the drawings. Rather, Applicant is entitled to have the claims interpreted broadly, to the maximum extent permitted by statute, regulation, and applicable case law.

Please grant any extensions of time required to enter this Amendment and charge any additional required fees to our Deposit Account No. 06-0916.

Respectfully submitted,

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DWH/CKA/sas

Attachments: Six (6) replacement sheets for figures 1, 4, 8, 11, 12, and 14.